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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/666,010

09/17/2003

Ga-Lane Chen

6596

25859

7590

11/01/2005

WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
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EXAMINER

HODGES, MATTHEW P

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/666,010

Applicant(s)

CHEN, GA-LANE

Examiner

Matt P. Hodges

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The Amendment, filed on 8/19/2005, has been entered and acknowledged by the Examiner.

Cancellation of claims 2 and 4 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Montgomery. (US 2003/0117770).

Regarding claim 7-9, Morita discloses (see figure 2) a plasma display panel including a panel (100), a heat sink (2) connected to the back of the panel by means of a thermal adhesive (50). The heat sink includes a plurality of fins extending away from the substrate. (Column 5 lines 19-40) Morita further recognizes that inclusion of a high-orientation layer between the panel and heat sink advantageously reduces temperature variations between the heat sink elements and improves the heat sinking effect. (Column 10 lines 43-49). Morita does not appear to specify the use of a orientated material for the thermal interface adhesive, however Montgomery, in the same field of endeavor, discloses the use of a carbon nanotube interface film to connect electronic devices and heat sinks. The use of a carbon nanotube interface film

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advantageously improves the heat conductivity of the adhesive element and therefore improves heat dissipation in the display panel. (Paragraphs 0012 and 0013). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the carbon nanotube adhesive layer as disclosed by Montgomery into the plasma display panel as taught by Morita in order to advantageously improve heat dissipation in the display panel.

Claims 1, 3, 5, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Montgomery (US 2003/0117770) and further in view of Getz, Jr. et al. (US 6,771,502).

Regarding claims 1, 3, and 5, Morita in view of Montgomery discloses (see figure 2) a plasma display panel as claimed (see rejection of claim 7 above). Morita does not appear to specify the use of an anisotropic material for the substrate of the heat sink, however Getz, in the same field of endeavor, discloses the use of an anisotropic base under conductive fins for an electronic device heat sink. The use of an anisotropic base advantageously improves the heat conductivity heat sink and therefore improves heat dissipation in the display panel. (Column 4 lines 34-40). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the anisotropic material for the substrate of the heat sink as disclosed by Getz into the plasma display panel as taught by Morita in view of Montgomery in order to advantageously improve heat dissipation in the display panel.

Regarding claim 5, Morita further discloses the thermal interface being about 0.1 mm thick. (Column 5 lines 19-21).

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Regarding claims 10-12, Morita in view of Montgomery and further in view of Getz discloses the device as claimed and likewise the manufacture of that device including filling the space between the heat sink and substrate with the adhesive layer.

Claims 1, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Montgomery (US 2003/0117770) and further in view of Krassowski et al. (US 2003/0183379 A1).

Regarding claim 1, Morita in view of Montgomery disclose a plasma display panel as claimed (see rejection of claim 7 above). Morita further recognizes that inclusion of a high-orientation layer between the panel and heat sink advantageously reduces temperature variations between the heat sink elements and improves the heat sinking effect. (Column 10 lines 43-49). Morita does not appear to specify the use of an anisotropic material for the substrate of the heat sink, however Krassowski, in the same field of endeavor, discloses the use of an anisotropic base under conductive fins for an electronic device heat sink. (See Abstract) The use of an anisotropic base advantageously improves the heat conductivity of the heat sink and therefore improves heat dissipation in the display panel. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the anisotropic material for the substrate of the heat sink as disclosed by Krassowski into the plasma display panel as taught by Morita in view of Montgomery in order to advantageously improve heat dissipation in the display panel.

Regarding claim 6, Morita in view Montgomery and further in view of Krassowski discloses the device as claimed, but does not appear to specify the use of aluminum fins. Morita

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in view Montgomery and further in view of Krassowski discloses the use of plastic fins that have a lower weight but also a lower heat dissipation than aluminum fins. Thus in cases where greater heat dissipation warrant additional weight, it is known to include materials that increase heat dissipation such as aluminum fins. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have used aluminum fins on the highly conductive graphite base as disclosed by Morita in view Montgomery and further in view of Krassowski, since the selection of known materials for a known purpose is within the skill of the art.

Conclusion

As this response includes new rejections not necessitated by amendment, the action is made non-final.

Response to Arguments

Applicant's arguments, see applicant's response, filed 8/19/2005, with respect to claims 1 and 7 have been fully considered and are persuasive. The rejections of claims 1 and 7 have been withdrawn.

However new rejections have been made.


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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (571) 272-2454. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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JOSEPH WILLIAMS
PRIMARY EXAMINER